

THE DER WEEKLY

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Industry News

Cummins, Inc., and Capstone Turbine Corp. to Work Together on New Products

In an April 30 press release, Capstone Turbine Corporation announced a three year agreement with [Cummins Incorporated](#). Under the arrangement Cummins will develop and market Capstone MicroTurbine-driven stationary power systems within the company's own designs, the insignia reading "Powered by Capstone MicroTurbine." Cummins expects to have the systems on the market later this year and intends to sell them worldwide, with the exception of Japan and Mexico. [Capstone Turbine Corp Press Release](#), April 30, 2001

Energy IPOs Heat Up Wall Street

Energy related companies have sparked the Initial Public Offering (IPO) market, which has been lackluster as of late. While the once high-flying internet and technology sector struggles to complete IPOs by delaying and lowering the price of offerings, energy companies have seen their offering prices raised several times. Reliant Resources, Inc., a subsidiary of Reliant Energy, saw its May 1 offering raised from the \$24-\$26 range to \$28-\$30. The company raised over \$1.5 billion in the offering. Energy-related companies have raised over \$11 billion this year in stock and convertible security offerings, compared to \$21 billion for all of 2000 and \$9 billion for 1999. These same companies comprise a third of 24 completed IPOs this year. *Wall Street Journal*, May 2, 2001

Wind Farm Developer and Marketer to be Headquartered in Northampton County, VA

A German-based wind farm developer and marketer, proVENTO International, will bring its headquarters to Cape Charles [Sustainable Technology Park](#) in



Building One, Cape Charles Sustainable Technology Park

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Northampton County, Virginia. The \$7.5 million facility will include six 1.3 MW wind towers and will initially provide energy to states with deregulated electricity markets. The tech park was developed as an environmentally sound location for eco-friendly businesses, constructed in a manner to have little effect on the environment and to market itself to environmentally conscious tenants. *PowerMarketers.com*

Ballard Generation Systems Ships Fuel Cell Powered by Anaerobic Digester Waste Gas



Ballard 250 kW stationary fuel cell

[Ballard Generation Systems](#) (BGS) announced on April 26 that it shipped a 250 kW stationary fuel cell power generator to the Nishimachi Sewage Treatment Centre in Japan for field testing. According to BGS, this is the first fuel cell to use waste gas from an anaerobic digester as a fuel for PEM fuel cell systems. BGS is preparing four similar units to be used in customer field tests in 2001 and early 2002. *Fuel Cell*

Technology Update, May 2001 and *Ballard News Release*, April 26, 2001

McKnight and Energy Foundations Partner in "Wind on the Wires" Project

Bringing together farmers, county commissioners, developers, and environmentalists, the McKnight Foundation and the Energy Foundation have agreed to provide \$4.5 million to stimulate further development of wind energy in the Upper Midwest. The project, Wind on the Wires, would help the foundation join together to make wind-generated electricity and wind-machine manufacturing a major industry in Minnesota and nearby states. Wind development is already underway in the area, with several wind farms located in southwestern Minnesota, a wind turbine blade manufacturing plant in Grand Forks, North Dakota, and a factory that builds wind turbine towers in Fargo, North Dakota. *The Star Tribune*, May 2, 2001

FuelCell Energy Unveils New Manufacturing Facility in Torrington, CT

FuelCell Energy unveiled its new manufacturing facility in Torrington, Connecticut on April 17. The production line was switched on by Governor John G. Rowland, who announced that the



Torrington Mayor Mary Jane Grynuik and Governor Rowland tour FuelCell Energy's new facility

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POWER CRUNCH

RealEnergy, Inc. Receives \$50 Million for Onsite Power Systems

RealEnergy, Inc. has received \$50 million in equity funding from investors to install and operate onsite power plants on commercial properties in Southern California. The funding will allow RealEnergy to construct onsite systems that can generate approximately 40 MW of power.

The initial installations of onsite power plants at 20 office buildings and a hotel are expected to be operating within the next few months, and are estimated to remove enough demand from California's electric grid to keep about 5,000 homes from experiencing power outages.

RealEnergy uses distributed energy generation systems including fuel cells, microturbines, solar, wind, and biomass in combination with the company's Web-based energy

management systems to provide low cost, reliable, and flexible energy to commercial property tenants.

Investments in this project come from a variety of sources.

GFI Energy Ventures, LLC, an investment firm that focuses on innovative gas and electricity distribution and marketing companies, has provided \$25 million. Calpers (California Public Employees' Retirement System), the nation's largest pension fund, plans to invest \$15 million through Global Innovation Partners.

The remaining \$10 million will be invested by Arden Realty, Inc., Credit Suisse Group's Credit Suisse First Boston, Detroit Edison, and Divco West Properties of San Jose, California. *The Wall Street Journal*, May 2, 2001; *Yahoo! Finance*, May 2, 2001, RealEnergy.com; GFIEnergy.com



state intends to purchase a 250 kW Direct FuelCell system through Connecticut's Clean Energy Fund. The company hopes that the new 65,000 square-foot manufacturing facility will meet the near term demand for its orders for commercial field trials that will be installed in locations worldwide in the coming year. *Fuel Cell Technology Update*, May 2001, and [FuelCell Energy Press Release](#), April 17, 2001

TransAlta to Invest \$5 Million in DG Company

[TransAlta](#) announced on May 3 that it has entered into an agreement to invest \$5 million in a distributed generation (DG) company, [Mercury Electric Corporation](#), the largest Honeywell microturbine fleet owner, which employs microturbine technology worldwide for waste gas mitigation. TransAlta invested \$5.2 million in ADCO, another DG company, in April. The company intends to build a portfolio of investments in emerging power and environmental technologies. *Yahoo! Finance*, May 3, 2001, and *TransAlta Press Release*, May 3, 2001



Mercury's Anderson Exploration oil production facility, Saskatchewan, Canada

Microturbines and Fuel Cells Focus of Article, "Power to the People"

In a May 2001 article in *Technology Review*, author Peter Fairly describes microturbines and fuel cells as "micropower generators" that can provide higher quality power than what people can purchase from their local utilities. He credits deregulation with giving utility customers the ability to avoid grid power through investment in distributed energy technologies when electricity prices soar. The article discusses which companies are the "Micropower Movers," including Ballard Power Systems, Capstone Turbine, Encorp, General Electric, Honeywell Power Systems, and Plug Power. "Power to the People," *Technology Review*, May 2001



DOE News

Microgrids and the Role of Storage

John Boyes, Sandia National Laboratories Energy Storage Program, presented a paper titled "CERTS Microgrid Concept and The Role of Storage" at the Energy Storage Association meeting on behalf of Abbas Akhil of the CERTS DER Group. The paper summarizes the CERTS microgrid concept, goals and activities and presents recent data taken at the University of California-Irvine test facility that reveals a lag time in microturbine response to step load changes. The paper includes options for storage as the solution to this lag. When paralleled with a microturbine, storage will also allow this system to transition from a grid-connected to a grid-independent mode without dropping load, thus providing seamless backup power. (Control modifications to future microturbines might eliminate this need.) Two types of storage configurations were discussed, including how on-board storage integrated into the distributed generation package will address the dynamic load-following issue and how traditional stand alone storage can provide multiple benefits to the microgrid. Much of the focus of this meeting was on transmission stability. (Consortium for Electric Reliability Technology Solutions (CERTS) is a research performer for the DOE Transmission Reliability program.)

Ceramic Stationary Gas Turbine (CSGT) Completes Last Technical Milestone

Solar Turbines Incorporated of San Diego, California, has completed 100 hours of full load operation on a fully ceramic Centaur turbine, with funding from the U.S. Department of Energy. To better withstand the intense, high-temperature gas turbine environment, Solar substituted uncooled, high-temperature capable ceramics for the metallic combustion liners and first stage vanes and blades. While generating about

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4 MW of electric power for the local grid, the operation confirms the adequacy of the design and manufacturing methodologies that were used. Moreover, raising the turbine inlet temperature from 1850°F, the normal temperature of the turbine, to 2050°F increased the turbines rated power output by almost 1 MW with a corresponding gain of 1.3 percentage points in efficiency. This raw data is preliminary and will undergo further analysis. Nevertheless, the operation confirms the value of ceramics for distributed generation of competitively priced power.

Reciprocating Engine Manufacturers Visit Oak Ridge National Laboratory

On May 1, 2001, three reciprocating engine manufacturers visited Oak Ridge National Laboratory. Representatives from Caterpillar, Inc., Waukesha Engine Division, and Cummins Engine reviewed specific programs and capabilities on natural gas reciprocating engines. These three manufacturers are part of the Department of Energy's (DOE) Advanced Reciprocating Engine Systems and are attempting to identify breakthrough technologies. Several project and program opportunities were identified, and the industrial manufacturers will be preparing a summary to review with the DOE Distributed Energy Resources team.

CA Seminars Introduce DER Technologies

The U.S. Department of Energy and the Urban Consortium of Public Technology, Inc. jointly sponsored seminars in California from May 1 to 4. The seminars introduced building code inspectors, fire marshals, and electrical and mechanical code inspectors to the latest in distributed power generation technologies, including fuel cells, microturbines, and photovoltaic systems. Anne-Marie Borbely, from the Pacific Northwest National Laboratory participated in the event, along with speakers from Capstone Turbine Corp., Avista Labs, FuelCell Energy, and city administrators.

Regional Office News

Global Change Symposium Kicks Off Earth Day Celebrations

A symposium entitled "Global Change: Economics and Ecosystem Functions," was held April 19 and 20 at the Georgia Institute of Technology to begin the university's week-long Earth Day Activities. The symposium featured a forum of scientists, economists, government leaders, and university faculty who discussed the value of nature to the nation's economy. Following presentations on air quality, government regulatory drivers, and the New Environmentalism movement, a roundtable featuring industry leaders was held. Participants included Ray Anderson, President and CEO of Atlanta-based Interface, Inc.; Ben Jordan, Environmental Manager for Coca-Cola North America; and Catherine Ross, Executive Director of the Georgia Regional Transportation Authority.

Chicago Regional Office Joins EPA Administrator in Urban Education Program

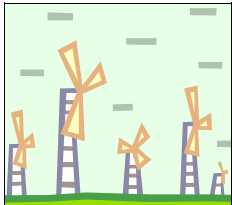
EPA Administrator Christie Whitman will announce an innovative urban education program about solar power, Chicago Del Sol, that will be piloted at the Peggy Notebaert Nature Museum, Chicago Public Schools, and Frank Reilly Elementary School. The program will include Web-based interactive environmental science activities, hands-on experiments, field trips to the museum and on-line chats with experts. The program will serve as a model for other Chicago urban schools. The Museum and Elementary School were among the first public buildings in the City of Chicago to receive photovoltaic systems in conjunction with the DOE Million Solar Roofs Initiative. Approximately 100 children, local and state officials, educators and others are expected to attend. Peter Dreyfuss, CRO Director, has also been invited.

Program Opportunity Notice

The New York State Energy Research and Development Authority (NYSERDA) has announced a new Program Opportunity Notice. NYSERDA seeks proposals that develop, demonstrate, or commercialize new control and sensor technologies for building systems or industrial manufacturing processes. Proposed activities should be innovative and seek to improve power quality and reliability, increase energy efficiency, reduce environmental impacts, or improve productivity. Awards total \$1 million, and individual projects will not exceed \$250,000. Proposals for this project are due June 13, 2001. Information is available at www.nyserdera.org.

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By the Numbers

32	percent increase of new wind energy capacity from 1999 to 2000	
4,492	MW of added wind capacity in 2000 worldwide	
18,449	MW of total installed wind capacity worldwide in 2000	
603	MW of wind capacity installed in Denmark during 2000 (largest amount of capacity installed worldwide)	
42.8	percent of world market of wind energy held by Danish wind turbine manufacturers: Vestas, Bonus, and NEG Micon	
39,000	estimated number of MW of new wind energy capacity to be installed worldwide in the next five years (2001-2005)	

Wind Energy Weekly, April 27, 2001, from BTM Consult report: *Wind Energy World Market Update 2000*

During 2000, industry shipments of microturbines were 1,200 units over the number shipped in 1999.*



Environmental News

Massachusetts Announces Emissions Rules

Effective June 2001, Massachusetts power plants will have to comply with new regulations designed to severely curb NO_x, SO₂, mercury, and CO₂ emissions. Acting Governor Jane Swift announced the rules, which will require power generators to cut SO₂ emissions by nearly 75 percent, NO_x by about 50 percent, and CO₂ by 10 percent. Mercury emissions cuts will begin in 2006, and power plants must start testing for the pollutant before implementation. The affected plants must pass inspection between October 2004 and October 2008. *Electricity Daily*, May 3, 2001

Acid Rain Auction an Economic Incentive to Achieve Reductions in Emissions

In late March the [U.S. Environmental Protection Agency](#) (EPA) and the [Chicago Board of Trade](#) held the ninth annual acid rain auction, a market-based program that uses economic incentives to help achieve cost-effective reductions in acid rain emissions. The auction provides an opportunity for private citizens, brokers, and power plants to purchase and sell SO₂ allowances, which give affected sources (mainly existing power plants) the right to emit one ton of SO₂ per year. If an affected source reduces its SO₂ emissions more than required, it can sell the leftover allowances or keep them for future use. According to EPA Administrator Christie Whitman, this program has “reduced acid rain emissions by 22 percent more than required by law.” *U.S. Environmental Protection Agency Press Release*, March 29, 2001.



Policy News

Bush Directs Federal Agencies to Cut Energy Use in CA, Renewables Energy Strategy

On May 3, President George W. Bush directed all federal agencies to conserve power and that facilities located in California cut their power consumption and report their activities to Energy Secretary Spencer Abraham in 30 days. President Bush hopes that taking these steps will help ease electricity shortages that may occur in California, the Northeast and the Northwest. Conservation measures recommended by the Administration include dimming lights, setting thermostats at 78 degrees during power shortages, and using stairs rather than escalators or elevators. The President indicated that energy conservation is an important part of the nation’s energy policy, but cannot be relied upon solely to solve the current situation.

According to *The Washington Post*, a senior White House official stated that the national energy plan to be introduced by the energy task force will include a goal of tripling renewable fuels by 2020. Recommendations are expected for tax incentives for R&D for solar, biomass, methane gas, and other energy sources.

[The Washington Post](#), May 4, 2001, pages A2 and A23

Alliance for Energy and Economic Growth Urges New Policies to Address Critical Needs

A new coalition of more than 200 small business owners, economic development groups, manufacturers, electric and natural gas utilities, and energy producers has called on Congress to develop a national energy policy that meets the group’s principles. On May 2 representatives of the [Alliance for Energy and Economic Growth](#) (AEEG) urged lawmakers to create a comprehensive, market-based energy policy that can sustain an economy that has outgrown existing policies, regulations, and infrastructure. Some of the principles advocated by the group include:

- ▶ Increase in energy efficiency and conservation
- ▶ Assurance of adequate energy supplies and generation
- ▶ Renewal and expansion of the energy infrastructure
- ▶ Encouragement to invest in new energy technologies
- ▶ Assurance of appropriate consideration of the impacts of regulatory policies on energy

[PR Newswire](#), May 2, 2001

Cheney Discusses Principles Included in National Energy Strategy

During a speech on April 30 at the Annual Meeting of the Associated Press in Toronto, Vice President Dick Cheney discussed the new energy strategy that will likely be delivered within the next couple of weeks. He stated that the strategy will provide recommendations based on three basic principles: a comprehensive approach with a long-term outlook, good stewardship, and making better use of what we take from the Earth.

The Vice President mentioned that the U.S. transmission grid is in need of repair and that an expanded system would “allow us to meet demand as it arises,” helping to avoid future blackouts. He said that this would work if the U.S. is “generating enough power in the first place” and that to meet projected demand over the next 20 years 1300 to 1900 new power plants need to be constructed.

Regarding stewardship, Mr. Cheney stated that the U.S. will “insist on protecting and enhancing the environment, showing consideration for the air and natural lands and watersheds,” as well as “making greater use of the cleanest methods of power generation we know.” After mentioning nuclear and hydroelectric power, he continued by saying, “Twenty years from now, with continued advances in R&D, we can reasonably expect renewables to meet three times the share of energy needs they meet today — from two percent of the national total, to six percent.”

During his discussion on making better use of what we take from the earth, the Vice President stated that efficient energy use is possible through advances in technology.

[U.S. Department of State, International Information Programs Web Site](#)



CALENDAR OF EVENTS

Date	Event	Location	Other Information
MAY 2001			
7-9	21st Annual Utility Energy Forum	Tahoe City, CA	gnelson181@aol.com
8	Workshop for Integrated Cooling Systems for Buildings	San Diego, CA	(Held in conjunction with Energy Management Congress 5/9-5/10) www.agcc.org
9	Green Power: Turn it on!	Harrisburg, PA	www.pennfuture.org
9-10	Second Int'l CHP Symposium	Amsterdam, Netherlands	www.2ndCHPSymposium.com ; Bob Dixon invited to speak
9-10	Energy Management Congress	San Diego, CA	Sponsored by FEMP; www.aeecenter.org
9-11	GasMart Power 2001	Tampa, FL	www.gasmart.com or (800) 427-5747
9-11	9th National Conference on Building Commissioning	Cherry Hill, NJ	Carolyn Dasher, PECl, 503-248-4636 ext. 204; www.peci.org/ncbc
13-16	Seventh Annual National Clean Cities Conference	Philadelphia, PA	Clean Cities Hotline: 800-224-8437 www.ccities.doe.gov/conference.shtml
14-17	First National Conference on Carbon Sequestration	Washington, DC	confserv@netl.doe.gov; www.netl.doe.gov
16-18	F-Cells Week 2001	Palm Springs, CA	www.igpc.com ; www.f-cellsnetwork.com ; 800-882-8684
21-23	Third Annual ICEPAG Conference	Newport Beach, CA	www.parcon.uci.edu/colloquium
22-24	Redefining Deregulation: Expect the Unexpected	Kansas City, MO	www.naescol.org
24-25	Conference on Hybrid Systems	Newport Beach, CA	www.parcon.uci.edu/colloquium
30-31	Fuel Cells Codes & Standards Summit V	College Park, MD	ronald.fiskum@ee.doe.gov
31	Idaho Geothermal Energy	Boise, ID	www.eren.doe.gov/geopoweringthewest
JUNE 2001			
3-6	FEMP Energy 2001 Conference	Kansas City, MO	www.energy2001.ee.doe.gov
3-7	WindPower 2001 Conference	Washington, DC	www.awea.org ; laura_keelan@awea.org
3-8	7th International Symposium on Solid Oxide Fuel Cells	Tsukuba, Ibaraki, Japan	sofc7@nimc.go.jp (National Institute of Materials and Chemical Research)
4-6	Advanced Technology Program National Institute of Standards and Technology — National Meeting	Baltimore, MD	www.atp.nist.gov/nationalmeeting
4-7	ASME Turbo Expo-Land, Sea, Air	New Orleans, LA	www.asme.org/igtj ; Debbie Haught organizing microturbine panel
4-7	International Joint Power Generation Conference & Expo	New Orleans, LA	www.asme.org/conf/ijpgc01 ; Debbie Haught is presenting
11	Fuel Cell Transportation Technology Summit	San Jose, CA	Sandra Gadzia; gadzia@sae.org
11-13	International Symp. on DG: Power System & Market Aspects	Stockholm, Sweden	www.ekc.kth.se/ees/workshop/DG.htm
(June events continued on page 6)			



CALENDAR OF EVENTS

JUNE 2001 (continued)

13-15	Natural Gas and Power Generation Strategies: Solving the Natural Gas and Energy Crisis	Tucson, AZ	www.interechusa.com
17-20	11th Canadian Hydrogen Conference: Building the Hydrogen Economy	Victoria, BC, Canada	www.iesvic.uvic.ca/cha (Canadian Hydrogen Association)
18-20	APPA National Conference	Washington, DC	www.appanet.org
21-22	Fundamentals of Energy Management	Memphis, TN	Sponsored by FEMP and Association of Energy Engineers www.aeecenter.org/seminars
26	Congressional Fuel Cell Exposition	Washington, DC	More information will be available at a later date.

JULY 2001

9-13	4th International Symposium on New Materials for Electrochemical Syst.	Montreal, Quebec	www.newmaterials.polymtl.ca/eng/congres
10-12	Gas Storage Workshop	Kingston, Ontario	David Quinn; quinn-d@rmc.ca
16-19	2001 National Workshop on State Building Energy Codes	Burlington, VT	www.eren.doe.gov/buildings/codes_standards/buildings/2001natl_workshop.html
24-27	ACEEE Summer Study	Tarrytown, NY	www.aceee.org ; Rebecca Lunetta; 302-292-3966
30 - Aug. 1	Green Power Conference	Portland, OR	Tina Kaarsberg, tina.kaarsberg@ee.doe.gov; megan_maguire@nrel.gov

AUGUST 2001

21-24	International Energy Program Evaluation Conference	Salt Lake City, UT	608-835-6880; marymcc@tds.net
29-30	Integrated Energy Efficiency Conference and Facilities Management and Maintenance Expo	Cleveland, OH	www.aeecenter.org
29-Sep. 3	IEEC Integrated Energy Efficiency Congress	Cleveland, OH	Sponsored in part by FEMP; www.aeecenter.org

SEPTEMBER 2001

11-13	7th Grove Fuel Cell Symposium	London, UK	www.grovefuelcell.com
17-21	Fifth Biomass Conference of the Americas	Orlando, FL	www.fsec.ucf.edu/bioam ; dee_scheaffer@nrel.gov
30 – Oct. 5	UPEX'01: The Photovoltaic Experience Conference & Exhibition	Sacramento, CA	Jjudd@ttcorp.com; Hosted by Sacramento Municipal Utility District; includes distributed energy technologies workshop

OCTOBER 2001

14-17	National Center for Photovoltaics Program Review	Lakewood, CO	barbara_ferris@nrel.gov, 303-275-3781
24-26	World Energy Engineering Congress	Atlanta, GA	www.agcc.org (includes CHP Expo www.aeecenter.org)
24-27	Excellence in Building 2001	Orlando, FL	www.eeba.org/conference

* Source: [Primen Press Release](#), January 24, 2001. (Primen is an independent energy market intelligence company that develops, analyses and delivers information on the electric and natural gas markets. It is an affiliate of EPRI and GRI.)